Current Psychology (2026) 45:809
https://doi.org/10.1007/s12144-026-09394-x

Turkish version of the 8-item difficulties in emotion regulation scale (DERS-8): validity, reliability, and measurement invariance by sex at birth

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Received: 19 December 2024 / Accepted: 7 April 2026
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Abstract

Emotion regulation difficulties are linked to a range of psychological and behavioral challenges, highlighting the importance of accurate and efficient assessment tools. The Difficulties in Emotion Regulation Scale (DERS) and its abbreviated versions (DERS-8 and DERS-16) have been widely used for this purpose. Among these, the DERS-8 offers a brief, unidimensional measure with promising psychometric properties, though it has been evaluated in limited cultural contexts. This study examined the psychometric properties of the DERS-8 among Turkish young adults (N=425), focusing on reliability, construct validity, and measurement invariance across sex at birth. Confirmatory factor analyses (CFA) were conducted to examine the factor structure of the DERS-8 and compare it with the original DERS-36 and DERS-16. Results indicated acceptable fit for the DERS-8 (χ^2/df=3.23, CFI = 0.97, TLI = 0.95, RMSEA = 0.07). Both the DERS-8 and the DERS-16 showed superior fit (χ^2/df=1.74, CFI = 0.98, TLI = 0.97, RMSEA = 0.04) compared to the DERS-36, which exhibited marginal fit. Correlations with the DERS-16 and DERS-36 supported strong convergent validity. Construct validity was supported by significant correlations with measures of psychological symptoms, affect, experiential avoidance, and personality traits. Multi-group CFA confirmed measurement invariance of the DERS-8 across males and females. These findings establish the DERS-8 as a reliable and culturally adaptable tool for assessing emotion regulation difficulties among Turkish young adults, offering a practical alternative for research and clinical settings where brevity is essential.

Keywords Emotion dysregulation · DERS-8 · Validity · Reliability · Measurement invariance

Introduction

Over the past three decades, emotion regulation has been recognized as a fundamental psychological process that plays a central role in mental health and daily functioning. Recent conceptualizations define emotion regulation as a multidimensional, goal-directed process that enables individuals to manage and adapt their emotions in response to various situations (Eisenberg & Spinrad, 2004; Gratz & Roemer, 2004; Gross, 1998). Depending on situational demands and personal goals, emotion regulation involves flexibly modulating emotions using various strategies. However, emotion regulation extends beyond simply controlling emotions. It also involves understanding one's emotional states, accepting and tolerating them, and controlling related behaviors such as impulsive actions (Gratz & Roemer, 2004).

This comprehensive approach to emotion regulation highlights its role in promoting mental health. Prior research has consistently shown that emotion regulation ability or use of adaptive emotion regulations strategies is strongly associated with resilience and psychological well-being (Kraiss et al., 2020; Polizzi & Lynn, 2021). Conversely, deficits in emotion regulation are often referred to as emotion regulation difficulties or emotion dysregulation. Previous research has shown that maladaptive emotion regulation strategies (see Cludius et al., 2020) and emotion regulation difficulties

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Published online: 14 April 2026

as a unitary construct (see Aldao et al., 2016; Carmassi et al., 2022) play a transdiagnostic role in the development and maintenance of various psychological and developmental disorders, including depression (Berking et al., 2014), anxiety disorders (Cisler & Olatunji, 2012), eating disorders (Mallorquí-Bagué et al., 2018), obsessive-compulsive symptoms (Yap et al., 2018), self-harm (Wolff et al., 2019), borderline personality disorder (Chapman, 2019), post-traumatic stress symptoms (Seligowski et al., 2015), substance use disorders (Stellern et al., 2023), and schizophrenia (Igra et al., 2023). This wide-ranging impact underscores the importance of assessing emotion regulation comprehensively in both clinical and research settings.

To address the need for evaluating emotion regulation difficulties from a multidimensional perspective, Gratz and Roemer (2004) developed a comprehensive self-report measure namely *the Difficulties in Emotion Regulation Scale (DERS)*. Consistent with the multidimensional framework of emotion regulation, the original DERS, which consists of 36 items, assesses six dimensions of emotion regulation difficulties. These dimensions include Lack of Emotional Awareness (the Awareness subscale, referring to difficulties attending to and recognizing emotions), Lack of Emotional Clarity (the Clarity subscale, referring to difficulties understanding one's emotional states), Nonacceptance of Emotional Responses (the Nonacceptance subscale, referring to difficulties in accepting one's negative emotions or negative reactions to distress), Difficulties Engaging in Goal-Directed Behavior (the Goals subscale, referring to challenges with task completion during negative emotional states), Impulse Control Difficulties (the Impulse subscale, referring to problems maintaining behavioral control during negative emotional states), and Limited Access to Emotion Regulation Strategies (the Strategies subscale, referring to beliefs about the inability to manage emotions). These dimensions were validated in their original validation study and the scale showed significant relationships between both overall and subscale scores and constructs such as emotional expressivity, negative mood regulation, experiential avoidance, self-harm, and intimate partner abuse, proving DERS as a valid instrument. Since its introduction, the DERS has become one of the most widely accepted and utilized tools in emotion regulation and dysregulation research. Beyond its initial validation, the DERS-36 has been supported across diverse clinical and non-clinical populations of adults (Burton et al., 2022; Fowler et al., 2014) and adolescents (Neumann et al., 2010; Perez et al., 2012); across different demographic groups (Ritschel et al., 2015) and across different cultural contexts (Cancian et al., 2018; Miguel et al., 2017; Rugancı & Gençöz, 2010). These studies further establish its cross-cultural validity and utility in measuring emotion regulation difficulties across various settings. Despite its robust psychometric properties and clinical utility, previous studies have raised concerns about the validity of the original DERS, particularly regarding the Awareness subscale. Specifically, Bardeen et al. (2012) noted that the Awareness subscale contributed less to a higher-order emotion dysregulation construct (factor loading = 0.26) compared to the other five subscales. Another study found that a five-factor structure of the DERS, excluding the Awareness subscale, yielded better model fit (Fowler et al., 2014). Furthermore, the Awareness subscale was less strongly correlated with other DERS subscales compared to interrelationships among the remaining five subscales and external variables (Bardeen et al., 2012, 2016; Fowler et al., 2014; Gratz & Roemer, 2004; Osborne et al., 2017; Tull et al., 2007). This suggests that the Awareness subscale may not fully capture core emotion regulation difficulties. In addition, the original 36-item DERS may present practical challenges in settings where brevity is critical, such as high-volume clinical environments and large-scale research studies. To address these concerns, shorter versions of the DERS have been developed: The DERS-16 (Bjureberg et al., 2016), a 16-item version with five subscales excluding the Awareness subscale; the DERS-SF (Kaufman et al., 2016), an 18-item version retaining all six original subscales; and the DERS-18 (Victor & Klonsky, 2016), another 18-item version with six original subscales. These shortened versions have shown excellent reliability and validity, making them widely utilized alternatives to the full DERS in research and clinical settings (Gouveia et al., 2022; Hallion et al., 2018; Miguel et al., 2017; Nooripour et al., 2023; Yiğit & Guzey Yiğit, 2019). To further enhance the utility and efficiency of assessing emotion regulation difficulties, an even briefer, unidimensional form—the DERS-8 (Penner et al., 2023)—was recently developed. This version distills the original DERS into eight core items representing key dimensions of emotion regulation, excluding the Awareness subscale. The DERS-8 retains the conceptual integrity of the original scale while offering significant advantages in terms of brevity and ease of administration, making it particularly well-suited for large-scale studies and clinical settings. Preliminary studies suggest that the DERS-8 maintains strong psychometric properties, with evidence supporting its reliability and construct validity in measuring emotion regulation difficulties effectively (Espirito-Santo et al., 2024; Penner et al., 2023; Zhang et al., 2025). However, despite its promise, research examining the psychometric properties of the DERS-8 across diverse cultural and demographic contexts remains limited. For instance, the DERS-8 has yielded good internal consistency and construct validity among Chinese adolescents (Zhang et al., 2025) and Portugal older people (Espirito-Santo et al., 2024). Given the limited cross-cultural evidence to date, validating the DERS-8

in Türkiye is important because of cultural differences in emotional expression, emotion socialization, and responses to psychological distress (e.g., Aka, 2023; Mesquita, 2001). Turkish cultural norms may place greater emphasis on emotional control, interpersonal sensitivity, and social harmony, which may influence how individuals experience and report emotion regulation difficulties (Koç et al., 2019; Pruessner & Altan-Atalay, 2025). Research has shown that emotion regulation strategies, as well as the meaning attributed to emotional distress, vary across cultural contexts (Gross & John, 2003; Mesquita & Walker, 2003). Accordingly, psychometric findings from Western samples may not be assumed to generalize directly to non-Western populations without empirical evaluation. Although the original 36-item DERS has been adapted into Turkish and shown to be valid and reliable (Rugancı & Gençöz, 2010; Sarıtaş-Atalar et al., 2015), shorter versions such as the DERS-8 require independent validation, particularly because item reduction may alter construct representation across cultures. Brief scales may be especially sensitive to cultural differences in item interpretation (see Smith et al., 2000), as fewer items must capture a broad construct. Establishing the validity and measurement invariance of the DERS-8 in Türkiye therefore has important implications not only for local research and clinical practice, but also for cross-cultural studies that seek to compare emotion regulation difficulties across societies. Without such evidence, observed group differences may reflect measurement artifacts rather than substantive cultural variation. By examining the psychometric properties and measurement invariance of the DERS-8 in a Turkish sample, the present study adds to the literature on cross-cultural measurement of emotion regulation and provides initial support for using a brief DERS form in Turkish research and applied contexts.

The present study aimed to address this gap by examining the psychometric properties of the DERS-8 among Turkish young adults. Specifically, we first examined the one-factor structure of the DERS-8 and compared it with the original DERS-36 (Gratz & Roemer, 2004) and DERS-16 (Bjureberg et al., 2016) using confirmatory factor analyses. We hypothesized that the DERS-8 would exhibit a unidimensional factor structure with acceptable model fit, comparable to the DERS-16 and superior to the original DERS-36. Second, to assess convergent validity, we calculated Pearson's correlation coefficients between the DERS-8 and both the DERS-36 and DERS-16. We also examined construct validity by calculating Pearson's correlation coefficients with psychological symptoms, positive and negative affect, experiential avoidance, and Big Five personality traits. We expected the DERS-8 to demonstrate strong convergent validity through high correlations with the DERS-16 and DERS-36, as well as meaningful associations with psychological symptoms, affect, experiential avoidance, and personality traits in theoretically expected directions. Additionally, we assessed the measurement invariance of the DERS-8 across sex at birth to determine whether the factor structure was consistent for male and female participants, using multiple-group confirmatory factor analysis. We hypothesized that the DERS-8 would demonstrate measurement invariance across sex at birth, indicating that the scale assesses emotion regulation difficulties equivalently across these groups. By providing empirical evidence on the utility and cross-cultural validity of the DERS-8 in a non-Western context, this study contributes to the broader literature on emotion regulation and supports its use as a practical tool for research and clinical applications.

Methods

Participants and procedures

Participants were 425 young adults aged between 18 and 30 years (M=23.23, SD=3.39, range=18–30). Of these, 48.2% (n=205) were male and 51.8% (n=220) were female, with most being university students (n=187, 44%). In terms of monthly household income, participants reported their household income using predefined monthly brackets[1] in Turkish Liras (TL): 16% (n=68) reported earning between 0 and 20,000 TL, 24% (n=102) between 20,001 and 40,000 TL, 28.7% (n=122) between 40,001 and 60,000 TL, 19.8% (n=84) between 60,001 and 100,000 TL, and 11.5% (n=49) reported earning over 100,000 TL. As another indicator of socioeconomic status, 32.7% (n=139) reported their mother's education level as primary school graduate, 24.7% (n=105) as high school graduate, 16.7% (n=71) as university (bachelor's degree) graduate, 14.8% (n=63) as middle school graduate, 3.8% (n=16) as illiterate, 3.8% (n=16) as literate with no formal education, 2.6% (n=11) as vocational school graduate, and 0.9 (n=4) as master's degree graduate. Inclusion criteria were absence of psychiatric or neurodevelopmental disorder, no psychiatric medication use, and willing to give informed consent. Participants were recruited using convenience sampling via social media using the Qualtrics. After providing consent, participants completed the questionnaires in about 15–20 min. No payment for their participation was provided. The study was approved by the Human Research Ethics Committee of XXX University (Decision Number: 2024-39; Decision Date: 11/01/2024).

[1] These brackets were used to describe the sample and to form income groups for the measurement invariance analyses; we intentionally did not label any category as "low," "moderate," or "high," given that such labels are context-dependent.

Initially, 588 participants began the study, of whom 163 did not complete it. Because the online survey required responses to all scale items before submission, there was no missing data among the 425 participants who completed the study; accordingly, all analyses were conducted using complete data (N=425). The final sample size was deemed sufficient based on established guidelines for confirmatory factor analysis (CFA), which recommend a minimum subject-to-item ratio of 10:1 to 20:1 and a minimum sample size of 200 to ensure reliable parameter estimates and model stability (Kline, 2023; MacCallum et al., 1999). This yielded subject-to-item ratios of approximately 53:1 for the DERS-8, 26:1 for the DERS-16, and 12:1 for the DERS-36, supporting stable parameter estimation.

Measures

Difficulties in emotion regulation scale

The original DERS (DERS-36) is a self-report scale consisting of 36 items across six subscales: Nonacceptance, Goals, Impulse, Awareness, Strategies, and Clarity (Gratz & Roemer, 2004). Participants rated each item on a 5-point Likert type scale, where 1 represents 'almost never' and 5 represents 'almost always', with higher scores reflecting increased levels of emotion dysregulation. In this study, we used the Turkish version of the DERS-36, which has demonstrated strong validity and reliability (Rugancı & Gençöz, 2010). In our dataset, Cronbach's alpha was 0.93 for the full scale.

Using items from the DERS-36, scores for the Turkish form of the 16-item DERS (DERS-16; Bjureberg et al., 2016; Yiğit & Guzey Yiğit, 2019), excluding the Awareness subscale, were calculated. As with the original DERS, higher scores indicate higher difficulties in emotion regulation. Both the original study and subsequent research have suggested that the DERS-16 is valid and reliable measure of emotion regulation difficulties (Bjureberg et al., 2016; Nooripour et al., 2023; Yiğit & Guzey Yiğit, 2019). In the current study, Cronbach's alpha for the DERS-16 was 0.92.

The DERS-8, a briefer unidimensional form of the original DERS, was developed by (Penner et al., 2023) and evaluated in this study. The items of the DERS-8 were derived from the previously validated Turkish version of the original DERS-36 (Rugancı & Gençöz, 2010). As such, all items used in the current study were already available in Turkish, and no additional translation procedures were required. Higher scores indicate greater emotion regulation difficulties. Prior studies (Espirito-Santo et al., 2024; Penner et al., 2023; Zhang et al., 2025) have supported validity and reliability of the DERS-8 for measuring emotion dysregulation. Detailed results regarding the psychometric properties of the DERS-8 are presented in the Results section.

Brief symptom inventory (BSI)

The BSI is a self-report measure designed to assess individuals' psychological symptoms (Derogatis, 1993). The Turkish form of the BSI (Şahin & Durak, 1994), consisting of 53 items rated on a 5-point Likert-type scale (1=not at all to 5=extremely), includes five symptom dimensions: Depression, anxiety, negative self, somatization and hostility. Higher scores reflect higher psychological symptoms. In the present study, Cronbach alpha coefficients for the subscales ranged from 0.80 (hostility) to 0.89 (anxiety).

Positive and negative affect scale (PANAS)

The PANAS is a self-report scale assessing individuals' positive and negative emotional states (Watson et al., 1988). The Turkish version of the PANAS (Gençöz, 2000) was used, with two subscales, namely positive and negative affect. Each subscale consists of 10 items rated on a 7-point Likert-type scale (1=Never to 7=Always). Higher scores in each subscale indicate more intense negative or positive emotions. In the present study, Cronbach's alpha coefficient was 0.90 for positive affect and 0.86 for negative affect.

Acceptance and action questionnaire II (AAQ-II)

The AAQ-II is used to measure assess one's psychological inflexibility (Bond et al., 2011). The Turkish form of the AAQ-II (Meunier et al., 2014) was used, with 7 items rated on a 7-point Likert type scale, where 1 represents 'never true' and 7 represents 'always true'. An increase in the total score indicates an increase in psychological inflexibility (or experiential avoidance). In the present study, Cronbach's alpha coefficient was 0.89.

Ten-item personality inventory (TIPI)

The TIPI is a self-report measure assessing the Big Five personality dimensions: Openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability (Gosling et al., 2003). The TIPI was adapted into Turkish by Hasan (2013). The scale consists of 10 items, with each personality dimension evaluated using two items rated on a 7-point Likert scale (1 = "disagree strongly" to 7 = "agree strongly"). In the present study, Cronbach's alpha coefficients were 0.65 for openness, 0.28 for conscientiousness, 0.41 for extraversion, 0.50 for agreeableness, and 0.32 for emotional stability. Because each TIPI domain is assessed with only two items, Cronbach's alpha is expected to be low

and is not an optimal index for internal consistency in this context; two-item scales generally yield lower alpha values even when the items show meaningful convergence (Eisinga et al., 2013; Gosling et al., 2003). Due to the TIPI's brevity and emphasis on content validity, low reliability coefficients are expected (Gosling et al., 2003). Accordingly, the TIPI domains were treated as brief indicators of personality traits rather than high-precision subscales.

Data analysis

Descriptive statistics for the sample were calculated. Confirmatory factor analyses (CFA) were conducted to evaluate the psychometric properties of the DERS-8, DERS-16, and DERS-36 using the robust maximum likelihood (ML) estimation method to account for any potential non-normality in the data. Exploratory factor analysis was not performed because the DERS-8 is a theory-driven short form derived from the DERS-36, which has an established factor structure. CFA was therefore used to test the predefined unidimensional model. Model fit was evaluated using multiple indices, including χ^2/degrees of freedom (df), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) with its 90% confidence interval, and Standardized Root Mean Square Residual (SRMR). Acceptable model fit was defined as χ^2/df lower than 3 or 5, CFI and TLI values ≥ 0.90, RMSEA ≤ 0.08, and SRMR ≤ 0.08, with excellent fit indicated by CFI and TLI ≥ 0.95, RMSEA ≤ 0.06, and SRMR ≤ 0.05 (Hu & Bentler, 1999; Kelloway, 1998; Kline, 2023). Model fit across DERS versions was compared using chi-square difference tests and changes in CFI and RMSEA. Specifically, a change in CFI of ≤ 0.01 and RMSEA of ≤ 0.015 was considered indicative of measurement invariance or negligible differences in model fit (Brown, 2015; Chen, 2007).

Measurement invariance across sex at birth, age, and income was tested sequentially using multi-group CFA (see Appendix A). Configural invariance was assessed first to determine whether the same factor structure held across groups. Metric invariance and scalar invariance were subsequently tested to examine whether the relationships between items and latent factors, as well as the item means, were equivalent across groups. Lastly, residual (or strict) invariance was employed to test whether the residual variances of the items are equal across groups, in addition to factor loadings and intercepts (Brown, 2015). Model comparisons were based on chi-square difference tests and changes in CFI and RMSEA, with the same thresholds applied as described above.

Furthermore, Pearson's correlation coefficients were calculated to examine the relationship between DERS-8 and the overall DERS-16 and DERS-36, as well as other psychological and emotional measures (i.e., BSI, PANAS, AAQ-II, and TIPI) to provide evidence of its validity. Because the primary aim of the study was to evaluate the DERS-8 as a short form of the original DERS-36, we focused on its associations with the DERS-36 and DERS-16 to establish convergent validity with instruments that measure the same core construct of emotion regulation difficulties. Lastly, Cronbach's alpha coefficient and the Guttman split-half coefficient were calculated to assess the internal consistency of the DERS-8. All analyses were conducted using JASP (Version 0.19.0).

Results

Factor structure of the DERS-8

First, we conducted a CFA to examine the factor structure of the DERS-8. As shown in Table 1, the initial one-factor model did not fit the data well: $\chi^2(df=20)=234.974$, $\chi^2/df=11.7$, CFI = 0.83, TLI = 0.77, RMSEA = 0.16 (90% CI [0.14, 0.18]), SRMR = 0.06. The poor fit of the initial one-factor model was not unexpected for a very brief scale whose items represent multiple facets of emotion regulation difficulties. Although these facets are theorized to reflect a common underlying construct, the small number of items increases the likelihood that closely worded or conceptually adjacent items will share variance that is not fully captured by the general factor (i.e., local dependence). In other words, when only eight items are used to cover a broad construct, residual clustering due to shared phrasing and highly similar content can become more visible in model fit indices, even when a unidimensional solution remains conceptually appropriate (Cole et al., 2007). All eight factor loadings were statistically significant ($p < .001$), ranging from 0.49 to 0.85.

Table 1 Model Fit Indices for the Versions of the DERS ($N=425$)

Models	χ^2/df	CFI	TLI	RMSEA	SRMR
One-factor model (DERS-8)	11.70	0.83	0.77	0.16	0.06
One-factor model with correlated error terms	3.23	0.97	0.95	0.07	0.03
Five-factor model (DERS-16)	2.60	0.96	0.95	0.06	0.04
Five-factor model (DERS-16) with correlated error terms	1.74	0.98	0.97	0.04	0.03
Six-factor model (DERS-36)	3.13	0.85	0.84	0.07	0.07
Six-factor model (DERS-36) with correlated error terms	2.93	0.87	0.86	0.07	0.07

Table 2 Factor Loadings and Standard Errors of the DERS-8 Items (N=425)

Item No	When I'm upset, …	Factor loading	Standard Error
7	I have difficulty thinking about anything else.	0.83	0.06
8	It takes me a long time to feel better.	0.83	0.05
5	I believe that there is nothing I can do to feel better.	0.78	0.05
2	I feel out of control.	0.76	0.06
4	I have difficulty controlling my behaviors.	0.75	0.05
6	I become irritated with myself for feeling that way.	0.74	0.06
1	I have difficulty getting work done.	0.70	0.06
3	I feel ashamed with myself for feeling that way.	0.45	0.05

To improve model fit, we inspected modification indices and allowed correlated residuals only when the paired items had clear overlap in wording and content (Brown, 2015; Kline, 2023). Specifically, we specified correlated residuals for Items 3–6, 2–4, and 1–7. Items 3 ("I feel ashamed with myself for feeling that way") and 6 ("I become irritated with myself for feeling that way") both reflect self-directed negative reactions when upset and share nearly identical wording ("with myself for feeling that way"), which supports shared residual variance beyond the general factor (see Cole et al., 2007). Items 2 ("I feel out of control") and 4 ("I have difficulty controlling my behaviors") both capture loss of control when upset and use closely related "control" language, which can reasonably produce correlated residual variance due to overlapping phrasing and a common impulse-control component. Items 1 ("I have difficulty getting work done") and 7 ("I have difficulty thinking about anything else") both reflect cognitive/functional interference when upset (concentration and goal-directed functioning), supporting a correlated residual due to shared content (Cole et al., 2007). No other residual covariances were added. After introducing the correlated error terms, the revised model showed significantly improved fit: χ^2(df=17)=54.913, χ^2/df=3.23, CFI = 0.97, TLI = 0.95, RMSEA = 0.07 (90% CI [0.05, 0.09]), SRMR = 0.03. All factor loadings remained statistically significant (p < .001), ranging from 0.45 to 0.83 (see Table 2).

In addition, we calculated average variance extracted (AVE) and composite reliability (CR) for the DERS-8 based on the standardized factor loadings from the final CFA model. The DERS-8 showed an AVE of 0.55 and a CR of 0.90, which supports adequate convergent validity at the latent construct level (Fornell & Larcker, 1981; Hair, 2014).

We also conducted two more CFAs to test the factor structure of the five-factor model (i.e., the DERS-16) and the original six-factor model (DERS-36; see Table 1). For the DERS-16, the initial model demonstrated excellent model fit to the data: χ^2(df=94)=244.256, χ^2/df=2.60, CFI = 0.96, TLI = 0.95, RMSEA = 0.06 (90% CI [0.05, 0.07]), SRMR = 0.04. All factor loadings were significant on their factor (p < .001). Based on suggested MIs, three correlated error terms on the same factor were included in the model, which resulted in improved model fit to the data: χ^2(df=91)=158.856, χ^2/df=1.74, CFI = 0.98, TLI = 0.97, RMSEA = 0.04 (90% CI [0.03, 0.05]), SRMR = 0.03, with all factor loadings being significant on their factors (p < .001). As for the DERS-36, the initial model showed marginal fit to the data: χ^2(df=579)=1812.022, χ^2/df=3.13, CFI = 0.85, TLI = 0.84, RMSEA = 0.07 (90% CI [0.06, 0.07]), SRMR = 0.07. After correlating errors between items on the same factor, the model fit improved: χ^2(df=576)=1688.851, χ^2/df=2.93, CFI = 0.87, TLI = 0.86, RMSEA = 0.07 (90% CI [0.06, 0.07]), SRMR = 0.07, with all items significantly loaded on their factor.

To determine which DERS model fits the data best, we examined changes in CFI and RMSEA between the models. CFI difference values (ΔCFA) suggest that both the DERS-8 and DERS-16 fit the data better than the DERS-36 (ΔCFA > 0.01; Chen, 2007), while the DERS-8 and DERS-16 showed similar model fit indices (ΔCFA ≤ 0.01). RMSEA difference values (ΔRMSEA) indicated that the DERS-16 showed a better model fit compared to the DERS-8 and DERS-36 (ΔRMSEA > 0.015), with no significant difference between the DERS-8 and DERS-36 (ΔRMSEA ≤ 0.015). Taken together, these findings suggest that the DERS-8 and DERS-16 are more likely to yield better results for construct validity compared to the original DERS-36.

Measurement invariance of the DERS-8 by sex at birth

A series of nested constrained models using multiple-group CFA[2] were conducted to examine whether the DERS-8 operates equivalently across male and female participants (i.e., measurement invariance; Brown, 2015). These models included configural invariance, metric invariance, scalar invariance, and strict invariance (see Table 3). Configural invariance, in which the same one-factor structure is estimated separately for males and females without constraining any parameters, is a prerequisite for testing measurement invariance and serves as a baseline for comparing constrained models. The configural invariance model demonstrated excellent fit: χ^2(df=34)=74.863, χ^2/df=2.20, CFI = 0.97, TLI = 0.95, RMSEA = 0.07 (90% CI [0.05, 0.09]), SRMR = 0.04. All factor loadings were significant (p < .001) for both males (0.42 to 0.87) and females (0.49 to 0.85).

[2] The results of the measurement invariance analysis of the DERS-8 by age and income levels are presented in Appendix A.

Table 3 Model Fit Indices for Measurement Invariance by Sex at Birth (ntotal = 425, nfemale = 220, nmale = 205)

Constrained Models	χ^2	df	χ^2/df	$\Delta\chi^2$	Δdf	$\Delta\chi^2 p$	CFI	RMSEA
Configural invariance	74.863	34	2.20	-	-	-	0.969	0.075
Metric invariance	80.671	41	1.97	5.808	7	0.562	0.969	0.067
Scalar invariance	89.261	48	1.86	14.398	14	0.420	0.968	0.064
Strict invariance	104.740	59	1.77	29.877	25	0.229	0.965	0.060

This indicates that the DERS-8 items are associated with the same underlying construct across males and females.

Next, metric invariance was examined by imposing equality constraints on factor loadings across groups. The metric invariance model showed excellent model fit indices: χ^2(df=41)=80.671, χ^2/df=1.97, CFI = 0.97, TLI = 0.96, RMSEA = 0.07 (90% CI [0.04, 0.09]), SRMR = 0.05. We then specified the scalar invariance model, which tests whether the intercepts of the measurement items are equal across groups. The scalar invariance model demonstrated an excellent fit to the data: χ^2(df=48)=89.261, χ^2/df=1.86, CFI = 0.97, TLI = 0.96, RMSEA = 0.06 (90% CI [0.04, 0.08]), SRMR = 0.05. Finally, we tested the strict invariance model, where the error variances are constrained to be equal across groups. This model also showed an excellent fit to the data: χ^2(df=59)=104.740, χ^2/df=1.77, CFI = 0.96, TLI = 0.97, RMSEA = 0.06 (90% CI [0.04, 0.08]), SRMR = 0.05.

Chi-square difference tests, along with differences in CFI and RMSEA, were calculated to determine measurement invariance across males and females, using configural invariance as the baseline for comparing the other constrained models. Significant results from a χ^2 difference test suggest that the model with the lower χ^2 value demonstrates a statistically superior fit (Hu & Bentler, 1999). As shown in Table 3, none of χ^2 difference tests were significant ($p < .05$), suggesting that the factor structure of the DERS-8 is invariant across males and females. Furthermore, differences in CFI and RMSEA of ≤ 0.015 (Chen, 2007) also confirmed the invariant factor structure across males and females.

Reliability of the DERS-8

Cronbach's alpha coefficients and Guttman split-half coefficients were calculated to examine the internal consistency of the DERS-8. Cronbach's alpha was 0.85 for both males and females, and the split-half reliability coefficient was 0.83 for males and 0.86 for females.

Validity of the DERS-8

Pearson's correlation coefficients were calculated between DERS-8 and DERS-16, DERS-36, and psychological and emotional measures to examine construct validity of the DERS-8. As shown in Table 4, the DERS-8 was significantly correlated with the DERS-16 ($r = .96$, $p < .001$) and the DERS-36 ($r = .92$, $p < .001$). Furthermore, the DERS-8 was significantly correlated with all subscales from the BSI, positive and negative affect, experiential avoidance, and all Big Five personality traits ($p < .001$).

Table 4 Correlations between DERS-8 and the Study Variables (N=425)

Variables	DERS-8
DERS-16	0.96***
DERS-36	0.92***
BSI-total	0.66***
BSI-depression	0.61***
BSI-anxiety	0.64***
BSI-somatization	0.52***
BSI-negative self	0.66***
BSI-hostility	0.52***
PANAS-positive	−0.38***
PANAS-negative	0.61***
AAQ-II-Experiential avoidance	0.71***
TIPI-Openness	−0.26***
TIPI-Conscientiousness	−0.49***
TIPI-Extraversion	−0.50***
TIPI-Agreeableness	−0.53***
TIPI-Emotional stability	−0.21***

***p <.001. *DERS* Difficulties in Emotion Regulation, *BSI* Brief Symptom Inventory, *PANAS* Positive and Negative Affect Scale, *AAQ* Acceptance and Action Questionnaire, *TIPI* Ten-Item Personality Inventory

Discussion

A great body of research has linked emotion regulation difficulties to various mental health problems across populations and cultures. Accordingly, substantial effort has been devoted to assessing these difficulties using self-report scales, such as the DERS-36 and its shorter versions (e.g., DERS-SF and DERS-16). Recently, there is a briefer version of the DERS (DERS-8) with eight items and unidimensional factor, which is understudied in terms of its cross-cultural validity and reliability. Thus, the current study examined the psychometric properties of the DERS-8 among Turkish young adults, focusing on its factor structure, convergent and construct validity, and measurement invariance by sex at birth, age, and income. Our findings supported a unidimensional structure of the DERS-8, aligning with its theoretical

conceptualization as a concise measure of overall emotion regulation difficulties (Penner et al., 2023). These findings support the DERS-8 as a brief, reliable, and valid tool for assessing emotion regulation difficulties in a non-Western context. Moreover, in line with the DERS framework (Gratz & Roemer, 2004), the DERS-8 appears to reflect a general "difficulty responding to emotions when distressed," which also fits broader views that focus on how people manage emotions once they are activated (Gross, 1998).

In comparisons with previous versions of the DERS, we found that the DERS-8's one-factor model fit was comparable to that of the five-factor DERS (DERS-16), a more widely validated short form of the DERS, and superior to the original six-factor DERS (DERS-36). These findings are consistent with prior research suggesting that shorter forms may provide a more efficient and robust assessment of emotion regulation difficulties without compromising validity (Bjureberg et al., 2016; Kaufman et al., 2016; Penner et al., 2023). Additionally, our data showed that the DERS-16 demonstrated a slightly better model fit compared to the DERS-8. This difference is not surprising: the DERS-16 retains several content domains and can absorb residual "facet-like" covariance through its domain structure, whereas the DERS-8 intentionally represents a broad, single-factor summary of difficulties. As a result, some closely related item content (e.g., negative self-reaction when upset, loss of control, and disruption to functioning) may share variance that is not fully captured by a single factor, which can show up as tighter item intercorrelations and localized misfit. While the brevity of the DERS-8 offers practical advantages (e.g., reduced participant burden), it may also limit domain-level interpretation compared to longer forms (e.g., DERS-16, DERS-36). Thus, the choice between the DERS-8 and longer versions should depend on assessment goals. The DERS-8 may be especially useful in large-scale studies or other time-limited settings, whereas longer forms may be preferable when domain-specific interpretation is needed. Future work should establish scoring norms and clinically relevant cutoffs. Furthermore, we found that the DERS-8 achieved measurement invariance across sex, age, and income by examining configural, metric, scalar, and strict invariance. Consistent with prior research with the DERS-8 (Zhang et al., 2025) and the DERS-16 (Yiğit & Guzey Yiğit, 2019), this finding suggests that the DERS-8 assesses emotion regulation consistently across these groups, allowing for meaningful comparisons. In practical terms, invariance indicates that observed group differences in DERS-8 scores are more likely to reflect differences in the underlying construct rather than measurement bias. This supports comparable interpretation across demographic groups in both clinical and research settings and provides a basis for future cross-group and cross-cultural comparisons. This is particularly relevant for cross-cultural research, where establishing measurement equivalence is necessary before drawing conclusions about cultural similarities or differences in emotion dysregulation. Given prior evidence of gender, age, income-related differences in emotion regulation strategies and outcomes (Côté et al., 2010; Miguel et al., 2017; Neumann et al., 2010; Nolen-Hoeksema & Aldao, 2011; Ortega, 2009; Troy et al., 2017; Yiğit & Guzey Yiğit, 2019), the DERS-8 could serve as a valuable instrument for further exploring these dynamics in both clinical and non-clinical populations. Nonetheless, continued evaluation of measurement invariance across broader cultural contexts and clinical populations remains essential to support fair use of the scale and to strengthen confidence in cross-sample comparisons.

Regarding validity analyses, we found that the DERS-8 showed strong convergent validity, as evidenced by high correlations with both the DERS-16 (0.96) and DERS-36 (0.92). This finding suggests that the DERS-8 adequately captures the broader construct of emotion regulation difficulties while offering a streamlined alternative to the existing DERS forms. Although there is no prior evidence on the relationship between the DERS-8 and other versions, this finding is in accord with other research which showed high correlations between the original DERS-36 and its validating abbreviated versions (Bjureberg et al., 2016; Kaufman et al., 2016). Our findings also supported the construct validity (e.g., criterion-related validity) of the DERS-8 by the significant correlations between the DERS-8 scores and psychological symptoms, affect, experiential avoidance, and Big Five personality traits. Specifically, higher scores on the DERS-8 were related to increased psychological symptoms, greater negative affect, lower positive affect, greater experiential avoidance, and lower levels of positive personality traits. These findings align with existing literature linking emotion regulation difficulties to various mental health outcomes (Berking et al., 2014; Gratz & Roemer, 2004; Menefee et al., 2022; Penner et al., 2023; Zhang et al., 2025). The relationships between DERS-8 scores and Big Five personality traits, such as higher neuroticism (lower emotional stability) and lower agreeableness and conscientiousness, also mirror established patterns observed in emotion regulation research (Barańczuk, 2019; Hughes et al., 2020; Penner et al., 2023). Taken together, these associations are consistent with transdiagnostic models in which emotion dysregulation is a core process linked to distress, negative affect, and avoidance-based coping. In this sense, the DERS-8 may serve as a useful brief global indicator in research and screening contexts.

The very high correlations with the DERS-16 (r = .96) and DERS-36 (r = .92) may raise questions about redundancy. However, because all DERS forms target the same

higher-order construct, these findings are better interpreted as expected convergence and as evidence of continuity across versions. The added value of the DERS-8 lies in its brevity and ease of use in time-limited settings (e.g., large surveys, repeated assessments), not in measuring a different construct. At the same time, the DERS-8 is less suited for situations where domain-specific profiling is needed (e.g., differentiating distinct emotion regulation components), in which case longer forms such as the DERS-16 or DERS-36 may be more informative. Accordingly, the choice among DERS versions is best guided by the assessment purpose: rapid screening and repeated monitoring versus more detailed domain-level characterization. Future studies can further test incremental predictive value (e.g., whether the DERS-8 predicts relevant outcomes as well as longer forms and whether any subscale-level information adds meaningful prediction beyond the total score). The internal consistency of the DERS-8, as assessed by Cronbach's alpha and the Guttman split half coefficient, revealed adequate reliability across males and females, supporting its potential for broad applicability in various research and clinical contexts. This finding is consistent with prior studies that have reported similar reliability coefficients for the DERS-8 (Espirito-Santo et al., 2024; Penner et al., 2023; Zhang et al., 2025), further validating its psychometric robustness. As a brief global index, adequate internal consistency supports its use for identifying elevated difficulties and tracking overall change over repeated measurement. However, further research is warranted to evaluate the test-retest reliability of the DERS-8, as stability over time is crucial for measures intended to assess enduring traits or track changes resulting from interventions.

Limitations

This study has limitations. First, the sample consisted of Turkish young adults recruited through convenience sampling, with nearly half being university students. This may limit the generalizability of the results to other age groups, cultural contexts, or populations with different educational and occupational backgrounds. University students may show distinct emotion regulation profiles because of their developmental and academic context. While the age range (18–30 years) captures variability within emerging adulthood, future research should replicate these findings in more diverse and non-student samples to confirm the scale's applicability across different groups. In particular, studies involving adolescents, older adults, and clinical populations are needed to further evaluate the validity and reliability of the DERS-8 across more heterogeneous samples.

Second, the use of self-report measures, including the DERS-8, may introduce response biases such as social desirability or inaccurate self-assessment. Although self-report is commonly used in emotion regulation research, future studies should consider triangulating data with other sources—such as observer ratings or behavioral tasks—to mitigate potential biases and strengthen construct validity. Additionally, ultra-short measures may offer less content coverage and be less informative for domain-specific clinical formulation, even when global reliability and validity are adequate. Relatedly, personality traits were assessed using the TIPI, and the low internal consistency observed for some two-item domains may have attenuated associations with the DERS-8; future studies may benefit from using longer Big Five instruments when personality is a primary focus. Third, while the study demonstrated measurement invariance of the DERS-8 across key demographic features (sex, age, and income), other important demographic variables, such as clinical diagnoses, could not be examined for their potential impact on the psychometric properties of the DERS-8. Specifically, we were unable to conduct a multi-group CFA based on mothers' education due to substantial group imbalance, with more than half of the participants reporting that their mothers had only completed primary school. This uneven distribution would compromise model stability and interpretability. Future research should explore measurement invariance across additional demographic and clinical subgroups, such as psychiatric diagnoses and cultural context, to further establish the robustness and generalizability of the DERS-8. Fourth, test-retest reliability was not assessed, which limits conclusions about the stability of the DERS-8 over time. Because the study was cross-sectional and data were collected at one time point, temporal stability could not be evaluated. Longitudinal studies are needed to assess both stability and sensitivity to change, especially for monitoring emotion regulation difficulties during interventions and in naturalistic contexts. Fifth, although the DERS-8 showed strong convergent and construct validity, the cross-sectional design precludes any causal interpretations regarding the relationship between emotion regulation difficulties and other psychological variables. Lastly, although the DERS-8 demonstrated strong correlations with the DERS-36 and DERS-16, which assess the same construct, we did not include other established emotion regulation instruments (e.g., Emotion Regulation Scale; Gross & John, 2003) to further support convergent validity. Future research should incorporate a broader range of emotion regulation measures to more comprehensively evaluate the validity of the DERS-8.

Conclusions

The findings of this study support that the DERS-8 offers a reliable and valid alternative to longer versions of the DERS for assessing emotion regulation difficulties among Turkish young adults. The scale demonstrated a unidimensional structure, robust internal consistency, and strong measurement invariance across sex, age, and income, suggesting its utility for both research and clinical settings. These findings indicate that the DERS-8 provides a valid and reliable assessment of emotion regulation difficulties across demographic groups, with invariance suggesting that score differences reflect true differences rather than measurement bias. Overall, the DERS-8 represents a promising tool for advancing the assessment of emotion regulation difficulties in diverse cultural and demographic contexts. Future research should evaluate the DERS-8 in broader populations and further clarify its role in settings where brief but psychometrically sound assessment tools are needed.

Appendix

Measurement invariance of the DERS-8 by age

To examine whether the DERS-8 measures emotion regulation difficulties equivalently across age groups, we conducted a series of multi-group confirmatory factor analyses (MG-CFA) testing configural, metric, scalar, and strict invariance. Age was categorized into three groups based on approximately equal distribution: young emerging adults (18-21 years, n = 143), early twenties/transition to full adulthood (22-25 years, n = 174), and mid-to-late twenties/late emerging adults (26-30 years, n = 108).

The configural invariance model, in which the same one-factor structure is estimatedfor each age group without imposing equality constraints, demonstrated acceptable fit to thedata: $\chi^2(df = 51) = 103.50$, $\chi^2/df = 2.03$, CFI = .95, TLI = .92, RMSEA = .07 (90% CI [.05,.09]), SRMR = .06. Next, metric invariance (factor loadings constrained equal across groups)was tested and also showed good fit: $\chi^2(df = 65) = 125.41$, $\chi^2/df = 1.93$, CFI = .94, TLI = .93,RMSEA = .07 (90% CI [.05, .08]), SRMR = .06. Compared to the configural model, the changein CFI (ΔCFI = .01) and RMSEA (ΔRMSEA = .00) was within acceptable thresholds,indicating support for metric invariance. The scalar invariance model (intercepts constrainedequal) fit well: $\chi^2(df = 84) = 163.42$, $\chi^2/df = 1.95$, CFI = .92, TLI = .91, RMSEA = .07 (90%CI [.06, .09]), SRMR = .07. Changes in CFI (ΔCFI = .02) and RMSEA (ΔRMSEA = .00)remained within acceptable limits. Finally, the strict invariance model (error variances alsoconstrained equal) showed acceptable fit: $\chi^2(df = 101) = 212.73$, $\chi^2/df = 2.11$, CFI = .91, TLI= .90, RMSEA = .07 (90% CI [.06, .09]), SRMR = .07. Chi-square difference tests betweenincreasingly constrained models were not statistically significant ($p > .05$), and the changesin CFI and RMSEA were all below the commonly accepted cutoffs (ΔCFI ≤ .01, ΔRMSEA ≤.015; Chen, 2007). These results collectively support full measurement invariance of theDERS-8 across age groups.

Measurement invariance of the DERS-8 by income

To assess whether the DERS-8 functioned equivalently across participants with differing income levels, we conducted a series of multi-group confirmatory factor analyses (MG-CFA). Income was categorized into three levels based on participant self-reports: low income (0-40,000 Turkish Liras [TL], n = 170), moderate income (40,001-60,000 TL, n = 122), and high income (60,001 TL and above, n = 133).

The configural invariance model, which tests whether the same one-factor structure fits across all income groups without equality constraints, showed a good fit: $\chi^2(df = 51) = 100.92$, $\chi^2/df = 1.98$, CFI = .95, TLI = .92, RMSEA = .07 (90% CI [.05, .09]), SRMR = .06. The metric invariance model, which adds equality constraints on factor loadings across groups, also fit the data well: $\chi^2(df = 65) = 123.56$, $\chi^2/df = 1.90$, CFI = .94, TLI = .93, RMSEA = .07 (90% CI [.05, .08]), SRMR = .06. The changes in fit indices relative to the configural model (ΔCFI = .01, ΔRMSEA = .00) were within acceptable thresholds, indicating support for metric invariance. Next, the scalar invariance model, which constrains item intercepts to be equal across income levels, showed acceptable fit: $\chi^2(df = 79) = 135.41$, $\chi^2/df = 1.71$, CFI = .94, TLI = .94, RMSEA = .06 (90% CI [.05, .08]), SRMR = .06. The changes in CFI (ΔCFI = .00) and RMSEA (ΔRMSEA = .01) were within the recommended cutoffs. Finally, the strict invariance model, which also constrains error variances across groups, demonstrated acceptable fit: $\chi^2(df = 101) = 170.16$, $\chi^2/df = 1.68$, CFI = .93, TLI = .93, RMSEA = .06 (90% CI [.05, .07]), SRMR = .07. Chi-square difference tests between increasingly constrained models were nonsignificant ($p > .05$), and all changes in CFI and RMSEA remained within acceptable limits (ΔCFI ≤ .01, ΔRMSEA ≤ .015; Chen, 2007). These results support full measurement invariance of the DERS-8 across different income levels.

Author Contribution All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Ibrahim Yigit and Alperen Arslan. The first draft of the manuscript was written by Melike Guzey and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Open access funding provided by the Scientific and Technological Research Council of Türkiye (TÜBİTAK). The authors did not receive support from any organization for the submitted work.

Data availability The data used in this study are available from the corresponding author upon reasonable request.

Declaration

Ethics Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Human Research Ethics Committee of TED University (Decision Number: 2024-39; Decision Date: 11/01/2024).

Consent to participate Informed consent was obtained from all individual participants included in the study.

Compliance with ethical standards Disclosure of Potential Conflicts of Interest.

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

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